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Attorney Docket No. 81922.0005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Kazuhiro IWABUCHI et al.

Serial No: 09/768,712

Filed: January 24, 2001

For: PORTABLE RADIO COMMUNICATION
APPARATUS

Art Unit: 2686

Examiner: Neghmeh
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Dear Sir:

Enclosed herewith are certified copies of English translations of Japanese patent application Nos. 2000-019183 filed January 27, 2000, 2000-019184 filed January 27, 2000 and 2000-020702 filed January 28, 2000, from which priority is claimed under 35 U.S.C. § 119 and Rule 55.

Acknowledgment of the priority document(s) is respectfully requested to ensure that the subject information appears on the printed patent.

Respectfully submitted,

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Date: December 18, 2003

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DECLARATION

I, Nobuhiko Ikeda, of SHIGA INTERNATIONAL PATENT OFFICE, 3-1, Yaesu 2-chome, Chuo-ku, Tokyo, Japan, understand both English and Japanese, am the translator of the English document attached, and do hereby declare and state that the attached English document contains an accurate translation of the official certified copy of Japanese Patent Application No. 2000-019183 that all statements made herein are true to the best of my knowledge.

Declared in Tokyo, Japan

This 28th day of November, 2003

A handwritten signature in black ink, appearing to read "Nobuhiko Ikeda".

Nobuhiko Ikeda

[Document Type] Specification

[Title of the Invention] Portable Radio Communication

Apparatus

[Claims]

5 1. A portable radio communication apparatus which has a sound input device for inputting sound, a sound output device for outputting sound, an input device for inputting various signals, and a communication device for communicating various communication data such as audio data, text data, and image data, the portable radio communication apparatus including:

a first case,

a second case which is rotatably connected to the first case and which can be in open and closed positions with respect to the first case,

15 a first display which is exposed when the second case is in the open position,

a second display which is exposed whether the second case is in the open or closed position,

20 a first illuminator and a second illuminator which illuminate the first display) and second display, respectively,

an electric power supply switch which can switch between lines to supply electric power for illumination to the first illuminator and the second illuminator,

25 an open/closed position detector which detects whether the second case is in the open or closed position, and a controller which controls the electric power supply

switch, with reference to the detection result of the open/closed position detector, to supply electric power to the first illuminator when the second case is in the open position, and to supply electric power to the second 5 illuminator when the second case is in the closed position.

[0001]

[Technical Field of the Invention] The present invention relates to portable radio communication apparatuses which employ various communication systems, and in particular, the 10 present invention relates to foldable portable radio communication apparatuses.

[0002]

[Prior Art]

Recently, portable communication apparatuses which employ 15 communication systems which enable high-speed transmission of data, such as PDC (Personal Digital Cellular), CDMA (Code Division Multiple Access), GSM (Global System for Mobile Communication), and PHS (Personal Handy-phone System), are widely used. In addition, communication systems of the 20 technologies of the next generation, such as WCDMA (Wide-band CDMA) and CDMA2000 are under development.

Among these types of portable radio communication apparatuses, ones having foldable structures so as to improve portability are known. However, a display section of such a 25 portable radio communication apparatus of foldable type can not be seen from the outside when it is folded.

Therefore, there are portable radio communication

apparatuses having structures such that the display function is maintained even when they are folded, which are provided with secondary display sections which can be seen from the outside even when the portable radio communication apparatuses 5 are folded, as described in Japanese Unexamined Patent Application, First Publication (Kokai), No. Hei 6-37697.

[0003]

[Problems to be Solved by the Invention]

However, even in a portable radio communication apparatus 10 of this structure, there has been a problem that the display of the exposed secondary display section is difficult to see in the nighttime or where illumination is dim.

Accordingly, one may consider providing each display section with a light to illuminate it; however, there has been 15 a problem that such illumination of each display section with a light is a heavy load on the battery, and the battery runs out in a short time.

[0004]

The present invention was achieved in view of the above 20 circumstances, and the object is to provide a portable radio communication apparatus which allows the display to be easily checked when the apparatus is folded even in the nighttime or in a dark place, and which can extend the battery life.

[0005]

25 [Means for Solving the Problem]

In order to achieve the above object, the portable radio communication apparatus according to claim 1 is a portable

radio communication apparatus which has a sound input device for inputting sound, a sound output device for outputting sound, an input device for inputting various signals, and a communication device for communicating various communication data such as audio data, text data, and image data, the portable radio communication apparatus including:

5 a first case,
a second case which is rotatably connected to the first case and which can be in open and closed positions with
10 respect to the first case,

a first display which is exposed when the second case is in the open position,

a second display which is exposed whether the second case is in the open or closed position,

15 a first illuminator and a second illuminator which illuminate the first display and second display, respectively, an electric power supply switch which can switch between lines to supply electric power for illumination to the first illuminator and the second illuminator,

20 an open/closed position detector which detects whether the second case is in the open or closed position, and

a controller which controls the electric power supply switch, with reference to the detection result of the open/closed position detector, to supply electric power to the first illuminator when the second case is in the open position, and to supply electric power to the second illuminator when the second case is in the closed position.

[0006]

Thus, since the controller controls the electric power supply switch so as to supply electric power only to the first illuminator, which illuminates the first display, when the 5 second case is in the open position, and to supply electric power only to the second illuminator, which illuminates the second display, when the second case is in the closed position to cover the first display, the display can be easily checked even in the nighttime or in the dark by illuminating one of 10 the displays depending on whether the second case is in the open or closed position, and the battery life can be extended by avoiding waste of electric power such as supplying electric power to the first illuminator when the second case is in the closed position, and the first display is covered, or 15 supplying electric power to the second illuminator when the second case is in the open position, and the second display is not used.

[0007]

[Embodiments of the Invention]

20 A portable radio communication apparatus of an embodiment of the present invention will be described in the following with reference to the drawings.

In Figs. 1 and 2, reference numeral 1 indicates a portable radio communication apparatus. This portable radio 25 communication apparatus has a first case 2 and a second case 4 which is rotatably connected to the upper portion of the first case 2 by a hinge 3. By rotating the second case 4 around the

connection by the hinge 3, the second case 4 can be in open and closed positions with respect to the first case 2.

That is, by rotating the second case 4 from the closed position (the position shown in Fig. 2), the second case 4 5 comes to the open position (the position shown in Fig. 1). In contrast, by rotating the second case 4 in the open position to the opposite direction, the second case 4 comes to the closed position.

[0008]

10 On the front side of the second case 4, which is a side to be put on the first case 2 when in the closed position, a main display section (first display) 11 is provided. In addition, on the back side, a sub-display section (second display) 12 is provided. The main display section 11 and the 15 sub-display section 12 are constituted by liquid crystal display panels which are disposed in the positions facing a window 11a for the main display section (window for the first display) and a window 12a for the sub-display section (window for the second display), respectively. Various contents are displayed on the main display section 11 and the sub-display 20 section 12.

In the upper portion on the front side of the second case 4, a speaker (sound output device) 13 is provided.

[0009]

25 On the front side of the first case 2, which is to be closed by the second case 4, a plurality of operation keys (input device) 14 are provided, and using these operation keys

14 various inputting operations can be carried out.

In the lower portion on the front side of the first case 2, a microphone (sound input device) 15 is provided. In addition, in the vicinity of the upper portion on the back 5 side, a retractable antenna 16 is provided, by which communication of various data such as audio data, text data, image data, and the like can be carried out.

[0010]

With this portable radio communication apparatus 1, when 10 the second case 4 is in the open position, input of sound is carried out using the microphone 15, and the speaker 13 emits the voice of the opposite party, the alert sounds, alarms and the like.

[0011]

15 Next, functions of the above portable radio communication apparatus 1 will be further described with reference to a functional block diagram shown in Fig. 3.

In this figure, reference numeral 22 indicates a detecting switch (open/closed position detector).

20 This detecting switch 22 detects whether the second case 4 is in the open or closed position with respect to the first case 2. The detection signal is output at the control section (controller) 21.

In the second case 4, a main illuminating device (first 25 illuminator) 24A and a sub-illuminating device (second illuminator) 24B are provided. The main illuminating device 24A and the sub-illuminating device 24B illuminate the main

display section 11 and the sub-display section 12, respectively.

A driver (electric power supply switch) 23 is connected to the main illuminating device 24A and the sub-illuminating device 24B. The driver 23 selects one of the lines to supply electric power from the battery 26 to the main illuminating device 24A or to the sub-illuminating device 24B.

5 A control section 21 is connected to the driver 23, and the control section 21 outputs a signal for controlling 10 switching toward the driver 23 based on the detection signal from the detecting switch 22.

[0012]

A radio section (communication device) 25 sends and receives various data, such as audio data, text data, and 15 image data, to and from the terminal of the opposite party via the antenna 16 using a radiocommunication network.

From the communication data received by the radio section 25, audio data is separated by a sound processing section, which is not shown in the drawings, and the sound is emitted 20 from the speaker 13. The sound input by the microphone 15 is input as a sound signal into the sound processing section, where the sound signal is converted into audio data, and the audio data are sent as communication data to the radio section 25, from which the communication data can be sent to the 25 terminal of the opposite party via the antenna 16.

[0013]

Next, control of the main illuminating device 24A and the

sub-illuminating device 24B by the control section 21 will be described.

When the second case 4 is brought into the open position from the closed position, the control section 21 judges, based 5 on the detection signal from the detecting switch 22, that the second case 4 is in the open position.

Then, the control section 21 outputs a signal to control switching to the driver 23 so as to supply the electric power from a battery 26 to the main illuminating device 24A to 10 illuminate the main display section 11.

Accordingly, the electric power from the battery 26 is supplied to only the main illuminating device 24A via the driver 23, the main illuminating device 24A is turned on, and the main display device 11 is illuminated.

15 [0014]

In contrast, when the second case 4 is brought into the closed position from the open position, the control section 21 judges, based on the detection signal from the detecting switch 22, that the second case 4 is in the closed position.

20 Then, the control section 21 outputs a signal to control switching to the driver 23 so as to supply the electric power from a battery 26 to the sub-illuminating device 24B to illuminate the sub-display section 12.

Accordingly, the electric power from the battery 26 is 25 supplied to only the sub-illuminating device 24B via the driver 23, the sub-illuminating device 24B is turned on, and the sub-display device 12 is illuminated.

[0015]

According to the above portable radio communication apparatus 1, when the second case 4 is in the open position, the control section 25 controls the driver 23 so that the 5 electric power is supplied only to the main illuminating device 24A, which illuminates the main display section 11, and when the second case 4 is in the closed position, covering the main display section 11, the electric power is supplied only to the sub-illuminating device 24B, which illuminates the sub- 10 display section 12. Therefore, even in the nighttime or in a dark place, either one of the main display section 11 and the sub-display section 12 is illuminated depending on whether the second case 4 is in the open or closed position, and the display can be easily checked. In addition, the battery life 15 can be extended since waste of electric power can be avoided such that the electric power is sent to the main illuminating device 24A while the second case 4 is in the closed position, covering the main display section 11, or the electric power is sent to the sub-illuminating device 24B while the second case 20 4 is in the open position and the sub-display section 12 is not used.

[0016]-----

[Effects of the Invention]

As explained above, the following effects are obtainable 25 from the portable radio communication apparatus of the present invention.

According to the portable radio communication apparatus

of claim 1, since the controller controls the electric power supply switch so as to supply electric power only to the first illuminator, which illuminates the first display, when the second case is in the open position, and to supply electric power only to the second illuminator, which illuminates the second display, when the second case is in the closed position to cover the first display, the display can be easily checked even in the nighttime or in the dark by illuminating one of the displays depending on whether the second case is in the open or closed position, and the battery life can be extended by avoiding waste of electric power such as supplying electric power to the first illuminator when the second case is in the closed position, and the first display is covered, or supplying electric power to the second illuminator when the second case is in the open position, and the second display is not used.

[Brief Description of the Drawings]

[Fig. 1] A perspective view of a portable radio communication apparatus describing the constitution and structure of the portable radio communication apparatus according to an embodiment of the present invention.

[Fig. 2] A perspective view of a portable radio communication apparatus which is folded describing the constitution and structure of the portable radio communication apparatus according to an embodiment of the present invention.

[Fig. 3] A functional block diagram describing functions of a portable radio communication apparatus according to the

first embodiment of the present invention.

[Brief Description of the Reference Symbols]

- 1 Portable radio communication apparatus
- 2 First case
- 5 4 Second case
- 11 Main display section (first display)
- 12 Sub-display section (second display)
- 13 Speaker (sound output device)
- 14 Operation keys (input device)
- 10 15 Microphone (sound input device)
- 21 Control section (controller)
- 22 Detecting switch (open/closed position detector)
- 23 Driver (electric power supply switch)
- 24A Main illuminating device (first illuminator)
- 15 24B Sub-illuminating device (second illuminator)
- 25 Radio section (communication device)

[Document Type] Drawing

[Fig. 1]

[Document Type] Drawing

[Fig. 2]

[Document Type] Drawing

[Fig. 3]

21 Control section

25 Radio section

5 26 Battery

[Document Type] Abstract

[Abstract]

[Problem to be Solved by the Invention] To enable a user to easily check the display when the apparatus is folded even in 10 the nighttime or in a dark place, and extend the battery life.

[Means for Solving the Problem] A second case 4 is connected to a first case 2 so as to be openable and closable. A main display section 11 which is exposed when the second case 4 is in the open position, a sub-display section 12 which 15 is exposed whether the second case 4 is in the open or closed position, a main illuminating device 24A which illuminates the main display section 11, and a sub-illuminating device 24B which illuminates the sub-display section 12 are provided. A driver 23 which selects a line to supply electric power for 20 illumination to the main illuminating device 24A or the sub-illuminating device 24B, and a detecting switch 22 which detects whether the second case 4 is in the open or closed position, are also provided. A control section 21 is provided 25 which controls the driver 23, with reference to the detection result from the detecting switch 22, to supply electric power to the main illuminating device 24A when the second case 4 is in the open position, and to supply electric power to the sub-

illuminating device 24B when the second case 4 is in the closed position.

[Elected Drawing] Fig. 3

FIG. 1

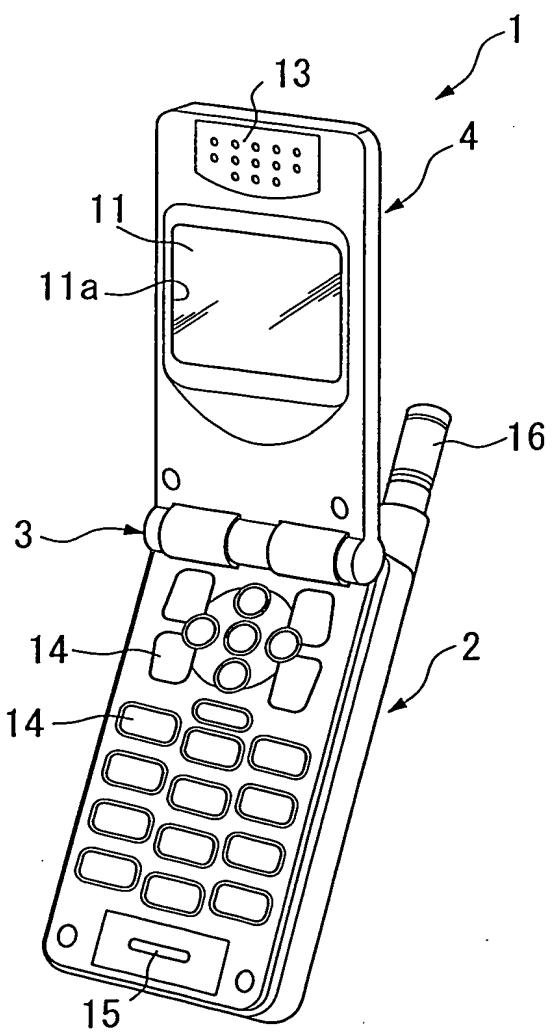


FIG. 2

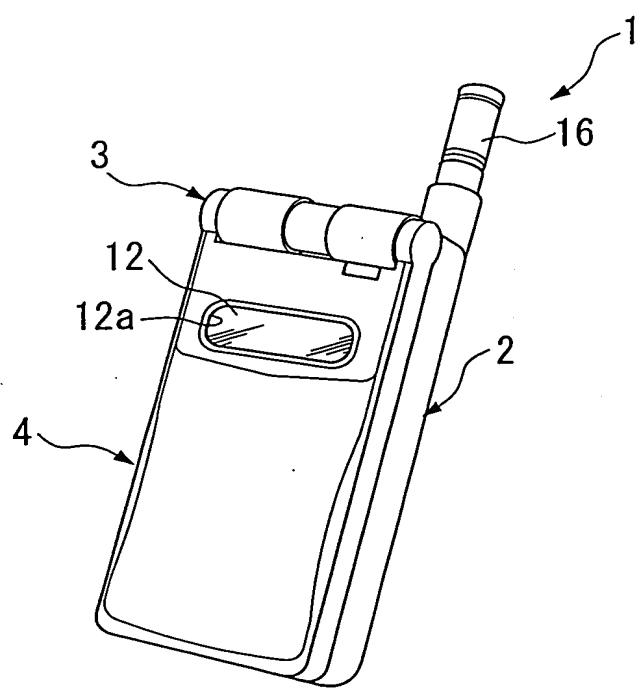
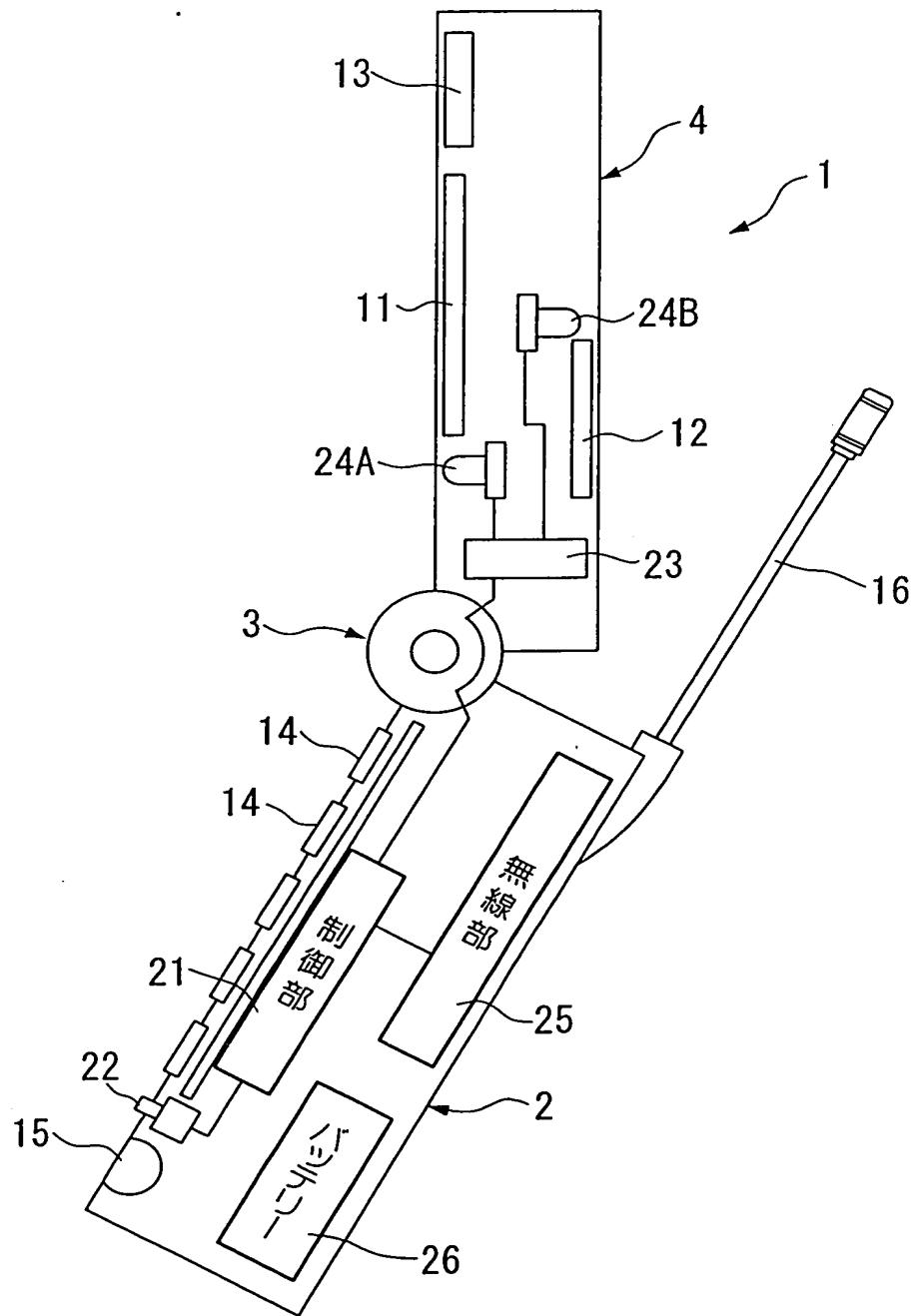


FIG. 3



NOTICE OF REASONS FOR REJECTION

Application Number: 2000-019183
Drafting Date: 2002/02/12 (year/month/day)
Examiner: Yasunobu MIZOMOTO 9473 5J00
Attorney: Masatake SHIGA et al.
Cited Articles: Article 29, Paragraph 2

This application should be rejected for the reason(s) laid forth below. If the applicant wishes to comment thereon, the applicant is invited to submit a response within 60 days from the mailing date of this notice.

REASON(S)

The invention(s) according to the below-listed claim(s) of the present application could have been easily made prior to the filing date by a person with average knowledge in the field to which the invention(s) belongs based on the invention(s) disclosed in the below-listed publication(s), distributed in Japan prior to the filing date of this application, and it is therefore deemed to be unpatentable in compliance with the provisions of Japanese Patent Law, Article 29, Paragraph 2.

(See the List of Citations for the cited publications)

EXAMINER'S COMMENTS

- Claim 1
- Citations 1, 2
- Notes

It is deemed that the invention according to the above-indicated claim could have been easily conceived of by a person skilled in the art by simply substituting the electric power supply destination constitution in the invention disclosed in Citation 1 into the illumination part constitution described in the invention disclosed in Citation 2.

The applicant will be notified of new reasons for rejection if such reasons for rejection are found.

LIST OF CITATIONS

1. Japanese Unexamined Patent Application, First Publication No. Hei 6-37697
2. Japanese Unexamined Patent Application, First Publication No. Hei 8-331631

RECORD OF PRIOR ART SEARCH

· Searched Technical Fields: IPC 7th Version H04B1/38-1/58

· Prior Art Reference(s):

1. Japanese Unexamined Patent Application, First Publication No. Hei 10-215303
2. Japanese Unexamined Patent Application, First Publication No. Hei 11-68899

This record of the prior art search does not constitute the reasons for rejection.

拒絶理由通知書

特許出願の番号 特願 2 0 0 0 - 0 1 9 1 8 3
起案日 平成 14 年 2 月 1 2 日
特許庁審査官 溝本 安展 9 4 7 3 5 J 0 0
特許出願人代理人 志賀 正武 (外 3 名) 様
適用条文 第 2 9 条第 2 項

この出願は、次の理由によって拒絶をすべきものである。これについて意見があれば、この通知書の発送の日から 60 日以内に意見書を提出して下さい。

理 由

この出願の下記の請求項に係る発明は、その出願前日本国内において頒布された下記の刊行物に記載された発明に基いて、その出願前にその発明の属する技術の分野における通常の知識を有する者が容易に発明をすることができたものであるから、特許法第 2 9 条第 2 項の規定により特許を受けることができない。

記 (引用文献等については引用文献等一覧参照)

- ・請求項 1
- ・引用文献 1, 2
- ・備考

当該請求項に係る発明は、引用文献 1 に記載された発明における電力供給先構成を引用文献 2 に記載された発明に開示された照明部構成に単に置換することによって、当業者が容易に想到し得たものと認められる。

拒絶の理由が新たに発見された場合には拒絶の理由が通知される。

引 用 文 献 等 一 覧

1. 特開平 6 - 3 7 6 9 7 号公報
2. 特開平 8 - 3 3 1 6 3 1 号公報

先行技術文献調査結果の記録

- ・調査した分野 I P C 第 7 版 H 0 4 B 1 / 3 8 - 1 / 5 8
- ・先行技術文献

発送番号 045816
発送日 平成14年 2月19日 2 / 2

- 1. 特開平10-215303号公報
- 2. 特開平11-68899号公報

この先行技術文献調査結果の記録は、拒絶理由を構成するものではない。

この拒絶理由通知の内容に関するお問い合わせ、または面接のご希望がございましたら下記までご連絡下さい。

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